

**Claims**

1. A self cleaning filter assembly for use in an exhaust system, including:  
a casing for placement in the path of an air flow, the casing containing:  
5 a first filter;  
a second filter;  
a barrier for placement adjacent to the casing to prevent a cleaning  
fluid from dripping from the first filter and out from the casing; and  
a plurality of spray outlets for dispersion of fluid within the casing and onto  
10 the filters,  
wherein the plurality of spray outlets create droplets of the cleaning fluid of a  
size able to combine with droplets of a contaminant to form combined droplets in  
the air flow and wherein the first filter and the second filter captures droplets of the  
contaminant and droplets from the spray outlets.  
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2. A self cleaning filter assembly as claimed in claim 1, wherein the barrier is a  
plurality of louvres that creates openings when the exhaust system is operational.
3. A self cleaning filter assembly as claimed in claim 1, wherein the barrier is  
20 slidable into the casing to create an opening when the exhaust system is  
operational.
4. A self cleaning filter assembly as claimed in any one of claims 1 to 3,  
wherein the barrier includes baffles to retard the air flow.  
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5. A self cleaning filter assembly as claimed in any one of claims 1 to 4,  
wherein the barrier includes at least one chamber for the containment of fluid.
6. A self cleaning filter assembly as claimed in claim 5, wherein there is a  
30 conduit for fluid drainage in the at least one chamber.

7. A self cleaning filter assembly as claimed in any one of claims 1 to 6, wherein each spray outlet disperses fluid with an arc of between sixty degrees and one hundred eighty degrees.
- 5 8. A self cleaning filter assembly as claimed in claim 7, wherein each spray outlet disperses fluid with an arc of one hundred and ten degrees.
9. A self cleaning filter assembly as claimed in any one of claims 1 to 8, wherein each spray outlet is selected from a group of outlets consisting of: a fan jet spray, and a nozzle.
- 10 10. A self cleaning filter assembly as claimed in any one of claims 1 to 9, wherein the cleaning fluid includes water and a degreaser in a required ratio in the range 1:10 to 1:50.
- 15 11. A self cleaning filter assembly as claimed in any one of claims 1 to 10, wherein the plurality of spray outlets are on an inlet side of a filter selected from the group consisting of: first filter and second filter.
- 20 12. A self cleaning filter assembly as claimed claim 11, wherein the plurality of spray outlets are located at each edge of a filter selected from the group consisting of: first filter and second filter.
- 25 13. A self cleaning filter assembly as claimed in any one of claims 1 to 10, wherein the plurality of spray outlets are located at the middle portion of each side of a filter selected from the group consisting of: first filter and second filter.
- 30 14. A self cleaning filter assembly as claimed in any one of claims 1 to 10, wherein the plurality of spray outlets are located on opposed corners of a filter selected from the group consisting of: first filter and second filter.
15. A self cleaning filter assembly as claimed in any one of claims 1 to 14, wherein the plurality of spray outlets are located within the casing.

16. A self cleaning filter assembly as claimed in any one of claims 1 to 15, wherein the barrier comprises at least one chamber with at least one baffle therein.
- 5 17. A self cleaning filter assembly as claimed in claim 2, wherein the plurality of louvres are fixed in a particular orientation.
18. A circulation system for fluids into at least one self cleaning filter assembly including:
- 10 a circulation tank; and  
a circulation pump;  
wherein the circulation pump operates as a venturi pump to circulate fluids in the system.
- 15 19. A circulation system as claimed in claim 18, further including at least one valve to control the flow of water into the circulation tank.
20. A circulation system as claimed in either claim 18 or 19, further including a supplementary tank for the containment of a fluid constituent.
- 20 21. A circulation system as claimed in claim 20, further including a dispenser for the fluid constituent.
22. A circulation system as claimed in either claim 20 or 21, wherein the fluid  
25 constituent is degreaser.
23. A circulation system as claimed in claims 18 to 22, wherein the fluid is cleaning solution.
- 30 24. A circulation system as claimed in claim 23, wherein the ratio of degreaser to water is in the range of 1:10 to 1:50.

25. A circulation system as claimed in claim 24, wherein the ratio of degreaser to water is 1:20.
26. A circulation system as claimed in any one of claims 18 to 25, wherein a  
5 stream of air after the circulation pump is passed into the fluids in the system.
27. A circulation system as claimed in any one of claims 18 to 25, wherein a stream of air before the circulation pump is passed into the fluids in the system.
- 10 28. A circulation system as claimed in any one of claims 18 to 27, wherein the circulation pump includes a filter.
29. A circulation system as claimed in any one of claims 18 to 28, wherein the circulation tank has an inclined sloping base.